



January 18, 1982

Ann Gorsuch
Director
U.S. Environmental Protection Agency
401 M. Street S.W.
Washington, DC 20460

Dear Ms. Gorsuch:

Attached is a copy of a report entitled "Terminating An Endless Search: An Action Approach to Solving the Water Problem." The report, prepared by City staff, was approved as a City policy at a special meeting of the St. Louis Park City Council on Monday, January 11, 1982

The report deals with the water problem in St. Louis Park and represents a significant change from the approach that has been taken for the past four or five years.

We feel the report represents a more manageable approach to the St. Louis Park water problem. It also represents somewhat of a change with respect to the various roles that have been played by the respective agencies. We ask that you give careful consideration to the contents of the policy statement and to regard the various proposals as an effort representing a spirit of cooperation among all who have been and will continue to be involved in the solution to this problem. After you have had a chance to review the statement and within the next several weeks, we would like to suggest a meeting of representatives from the various agencies to discuss in further detail the suggested proposals.

Should you have any questions regarding any items in the report including the proposed time schedule, please do not hesitate to contact this office.

Very truly yours,

James L. Brimeyer

James L. Brimeyer
City Manager

Encl.

TERMINATING AN ENDLESS SEARCH:

An Action Approach to Solving the Water Problem

Presented to the St. Louis Park City Council
January 11, 1982

Since 1975 four major studies have been undertaken to investigate contamination of the City's groundwater and to explore courses of remedial action. The Barr Phase I report completed in 1976 charted the areas affected by creosote contamination and called for further study to define acceptable contaminant levels, to predict the future ramifications on the groundwater system and to recommend corrective actions and further studies. Release of the Barr Phase II report followed in 1977. This second report concluded that:

1. shallow contaminated aquifers will continue to act as a source of contaminants to bedrock aquifers;
2. a gradient control well system should be implemented to remove source fluid materials;
3. excavation should be studied further in order to remove the heavily contaminated soils; and
4. hydrology of the area should be further defined.

Following the Barr II report, the United States Geological Survey study was launched resulting in a thorough hydrological and geological study which defined the aquifer system and, to a lesser extent, the location of the contaminants.

Many of the recommendations contained in the Barr Phase II report led to the commissioning of yet another study. The Hickok study was undertaken to provide data consistent with the specific objectives of providing plans needed to implement a gradient control well system and developing information for a soil excavation program.

Although four years have transpired between the completion of the Barr Phase II report and the release of the Hickok report, minimal progress in addressing the contamination problem has been achieved. A general assessment of the Hickok report reveals that the only issue for which a detailed recommendation was delivered concerned containment of the contamination by means of a gradient control well system. Further study is recommended to delineate the extent of fluid and soil contamination in the "source" area. Recommendations are not provided for treatment of the groundwater or for any plan of disposing it after it has been pumped from the ground.

This apparent lack of progress coupled with the recommendation for still more study strongly suggests that a passive approach to this problem is prevailing -- an approach which ignores the urgent need for action.

The report which follows offers a different, if not new, way of conceptualizing the contamination problem. It advocates that the primary focus of the approach should be to emphasize management and control of the contamination problem. The report maintains that without this focus, the groundwater contamination may, in effect, be allowed to spread beyond its current boundaries.

CRITIQUE OF PAST EFFORTS

Taken as a whole, these water studies have not met the expectations of St. Louis Park officials. In part that reaction is due to the number of data deficiencies which they perpetuate and the lack of a recommended course of action after six years of study. But more significantly, this reaction comes from the recognition that some of the underlying themes which guided the way in which these studies were conducted must be questioned. It is the recognition that these central beliefs may, if they are not challenged, prevent the resolution of the contamination problem within a reasonable timeframe.

From a review of past efforts, three basic themes emerge. These themes characterize the approach which has been used to address the groundwater contamination problem. They have also influenced the kinds of outcomes that have been deemed acceptable. These themes, or central beliefs, can be summarized as follows:

Theme I - A "clean" environment must be achieved at all costs.

While the studies have focused on complete elimination of polynuclear aromatic hydrocarbon (PAH) compounds, they have not analyzed the societal benefit which would result when compared to the public cost of making the environment "clean." Before any cost-benefit analysis can be made, more specific data on the health implications of PAH compounds must be obtained. The prevalence of PAH compounds as they occur naturally in our environment is not known. Nor is the magnitude of health risk to which human beings might possibly be exposed by various levels of PAH compounds. In light of these deficiencies, establishment of PAH standards based on risks to human health becomes a key issue in determining the steps which should be taken to abate the contamination.

Presently, state agencies are using an unofficial standard of 2.8 parts per trillion for the known carcinogenic PAH compounds. But in addition, the State has also established an arbitrary limit of 28 parts per trillion for all other PAH compounds even though the non-toxicity of most varieties of these compounds is undisputed. These unofficial standards bear little, if any, relationship to actual human health risks caused by PAH compounds.

Any physical improvements that are constructed as part of a remedial course of action will be made at the public's expense. Therefore, the public must be assured that such expenditures are made in response to improvements needed to protect human health. Furthermore, such expenditures must be determined in light of the price that the public is willing to pay for a "clean" environment. Determination of this price must also take into consideration any minimal health risks which the

public may be willing to accept.

An appropriate analogy to this situation is provided by the discussions which led up to the establishment of rigid standards for drinking water. Quantity limitations for materials such as lead, ammonia, cadmium, etc. are based principally on health risk and are closely monitored by the State Health Department. Questions like the ones posed above cannot easily be dismissed because they have been answered previously but in different circumstances.

Theme II - A complete solution to the contamination problem must be developed before decisive mitigating actions can be commenced.

A premise underlying the water studies concerns the search for a complete and comprehensive solution to the contamination problem. Yet, no such all-encompassing solution is on the horizon. The contamination problem has broadened geographically contributing to its urgency during the many years of study. Since St. Louis Park originally closed four of its fourteen wells in 1978, the contaminants have shifted resulting in additional well closings in 1979 and 1981 as well as a closing in Hopkins.

The Hickok report notes that the spreading of the contaminants must be arrested and recommends that St. Louis Park wells No. 4, 10 and 15 be returned to operation and that their effluents be discharged into the sanitary sewer system. This short-term action constitutes one of the first steps in what can be described as an incremental approach to managing and ultimately resolving the contamination problem. The incremental approach is well suited to these particular circumstances because it provides the flexibility to implement short-term actions while alternatives for long-term action are being thoroughly deliberated.

In the past, too much effort has been expended in "preserving" the problem to facilitate its study. But the problem must be recognized as a dynamic one which requires immediate management and control in order to prevent the further spread of contaminants.

Theme III - Remedial action must be directed toward mitigating the contamination which occurs in the groundwater aquifers.

Research efforts have been oriented primarily toward correcting the groundwater problem. But the related problem of insuring adequate supplies of potable water to St. Louis Park residents has received little attention in these studies. To examine the groundwater contamination aspect of the problem to the exclusion of treatment alternatives provides only a fragmented perspective of the problem. A 1980 City-initiated study conducted by Hickok & Associates confirmed that the carbon adsorption treatment process was effective in removing PAH compounds from the water thereby making it safe for consumption. Similarly, the viability of this alternative has been clearly recognized in the \$200,000 provided by the U.S. Environmental Protection Agency for the purpose of designing a water treatment facility. Indeed, it is difficult to comprehend why this alternative has not been given equal importance throughout the water studies.

The examination of these three themes leads to a renewed understanding of the contamination problem. First of all, it places primary importance in determining the minimal exposure to health risk that society may be willing to accept and in establishing PAH standards that conform to definite human health risks. Secondly, it acknowledges the urgent need for short-term actions to control the spread of contaminants concurrent with the need for continued deliberation of long-term solutions. Finally, it elevates the drinking water treatment alternative to a position of equal importance as compared with alternatives for mitigating groundwater contamination.

REDEFINING THE PROCESS

A restatement of the contamination problem also implies a redefined process for working toward sound management of the problem as well as a commitment to its long-term solution. The incremental approach to managing and resolving this problem requires the coordinated effort of local, state and federal officials.

Management of the problem must not be confused with study of the problem. They are two distinct areas of the process, both of which are needed to achieve an overall solution. It therefore follows that the roles of the participants must correspond to the management and study components of the process. Participants must be assigned those functions of this process that are consistent with their jurisdictional responsibilities.

The City's Role - The significance of the City's participation cannot be dismissed as easily as it has been in the past. Operating responsibilities of the water utility service rest solely with the City of St. Louis Park. Similarly, the integrity of that system depends upon the actions taken by the City. St. Louis Park's representation throughout the process is necessary to insure accountability to St. Louis Park residents who are concerned with the effect that short- and long-term solutions could have on the water rates and taxes which they pay.

Many of the steps needed to manage the problem require the skills of an agency that is familiar with the day-to-day operational and implementation aspects of a municipal enterprise system. In this sense, the City of St. Louis Park is best geared to assume the management and implementation role throughout this process as it relates to supplying an adequate volume of potable water to St. Louis Park residents.

The City's familiarity with conventional water treatment processes such as iron filtration and chlorination logically makes it the appropriate lead agency in pursuing water treatment alternatives for PAH removal. City leadership in this area is consistent with municipal jurisdictional responsibilities. The operation of water treatment plants in Minnesota has always been a function of the local municipality.

The significance of City leadership in the water treatment studies is that it expedites St. Louis Park's ability to return wells to operation, thereby satisfying the residential demand for potable water. However,

even with City leadership, the need for cooperation with the State is not lessened because containment of the contaminants is directly related to treatment of the water.

The State's Role - The State's role in this process should be limited to those issues that have a direct effect on the litigation with Reilly Tar and Chemical, the establishment of PAH standards and the spread of contaminants throughout the regional system of aquifers.

Establishment of PAH standards is an area of study which requires the participation of many different entities. Especially critical to this study is the involvement of the scientific community in the assessment of human health risks posed by PAH compounds. State leadership in this area reflects the State-wide importance of establishing PAH standards.

Preventing the spread of contaminants throughout the regional system of aquifers is a State concern, but it is very closely related to drinking water treatment alternatives that the City wants to pursue. By expediting the return of City wells to operation, the State can actually begin to witness the implementation of a gradient control well system because the pumping of these wells will bring about the containment of the contaminants.

Aside from these specific areas of involvement, the State's role throughout this process should be one that facilitates movement towards short- and long-term solutions. The State must recognize that the full participation of the City and scientific community is essential to resolving the contamination problem within an acceptable timeframe. It must not discourage this participation by attempting to exercise complete control over the process.

The Federal Role - Federal officials have become increasingly involved in the deliberations surrounding the contamination problem. Their involvement is needed in the litigation, in the establishment of PAH standards and in the effective administration of federal programs like the Superfund.

The establishment of PAH standards for Minnesota may very well have a national impact. Like the State, Federal officials must insure the involvement of the scientific community so that established standards have a direct correlation with human health risks posed by PAH compounds.

Effective administration of Federal programs designed to help communities address contamination problems constitutes a significant responsibility. Disbursement of Federal funds should be followed closely by the initiation of studies or the implementation of programs. Funds from the U.S. Environmental Protection Agency specifically targeted for a well inspection program and design of a water treatment plant in St. Louis Park were released respectively in July 1981 and September 1981. Yet, as of January 1982, work has not commenced on either project. Federal officials must be guided by a commitment to progress in resolving this contamination problem. Delays of this kind which may be contributing to a geographic broadening of the problem cannot be tolerated in the future.

The Legislative Role - The process would also benefit from an increased interest and involvement from State and Federal legislators. A

review of past efforts makes it apparent that the process must necessarily change from one that is cumbersome and lethargic to one that is responsive to the problems outlined in this report. Disbursement of Federal and State funds for study and implementation purposes invites legislative scrutiny to insure that the work financed by these public dollars is contributing to the solution and that too much federalism is not diluting such efforts. Legislative support is also needed to insure that the establishment of PAH standards follows an expeditious course.

THE INCREMENTAL APPROACH

Throughout this report, reference has been made to the importance of adopting an incremental approach to deal with the contamination problem. This approach encompasses two tiers of activity which need to be performed concurrently. The first tier involves studying only those aspects of the contamination problem where additional data are needed to determine health risk, establishment of PAH standards and alternative long-term solutions. The second tier provides for implementation of immediate measures to control the problem as well as the actions which must eventually be taken to effect long-term solutions. Taken as a whole, these activities allow steps to be taken now while the studies necessary to arrive at a permanent solution continue.

The First Tier

The single most important study which must be conducted as expeditiously as possible is the ascertainment of the health risk that is actually posed by PAH compounds. This study should be coordinated by the State and should capitalize upon a wide variety of available resource persons. It is imperative that standards be established for these compounds at the earliest opportunity. This effort warrants the attention of Federal and State elected officials as well as the scientific community in general. As long as there are no established standards, it will be difficult to determine the appropriate course of action to be pursued that will contribute to a suitable water system in the future.

Two additional studies must also be undertaken within the coming months. The first involves a complete water treatment study which should be performed by a consultant under the direction of the City as the lead agency. The ultimate goal of that study will be returning the closed City wells to operation so that the water can be used for drinking purposes. Upon completion of this study, treatment plans and specifications should then be developed, again under the direction of the City. Commencement of this study can occur immediately since funding from the U.S. Environmental Protection Agency for this study has been available since September, 1981. A general scope of services also exists for this study. Completion of the study should be accomplished by the summer of 1982; and plans and specifications should be ready for implementation by the spring of 1983.

The second study to be directed by the State concerns a thorough delineation of the boundaries of the "source" fluid and materials located to the south of the former Reilly Tar and Chemical site. The outcome of this study should be the development of a plan to contain and/or remove

these materials. The plan should be available within two years.

It should be noted that the construction of gradient control wells has been of great interest throughout the Hickok report. However, the need for further study of a gradient control well system should be evaluated only after completion of the water treatment and soils management studies.

The Second Tier

In order to control the problem while this study takes place, implementation measures should be initiated concurrently. These measures are detailed below:

1. The City must continue monitoring water quality and taking adequate precautions to insure residents of the availability of drinking water. The City is currently conducting a sampling program which provides quality control assurances. The Minnesota Department of Health has approved a sampling frequency process which requires operational wells to be sampled on a monthly basis and all other wells to be sampled on a quarterly basis.
2. In order to provide additional water to compensate for capacity lost due to the closing of six of the City's fourteen wells, St. Louis Park has initiated an interconnection with the City of Plymouth to provide water to the Shelard Park area beginning in March, 1982. The City is also continuing its progress in the construction of Hinckley Well No. 17. Pumping of the well is expected to begin in May, 1982.

To further avert shortages, it will be necessary for the City to institute water use restrictions during the summer season as a regular feature of its water management program. This must be done until an adequate quantity of water can be assured beyond any question. Meanwhile, the City will also be devising a contingency plan which will outline the procedures for making interconnections with the Cities of Minnetonka and Minneapolis.

3. The City should begin operating Wells 4, 10 and 15 and discharging the effluents into the sanitary sewer system by June, 1982. The June date would allow for the sewer connections to be constructed and would also provide the time needed to identify how the charges for the effluent disposal would be paid. These wells must be returned to operation in order to contain the contaminants. Unfortunately, the operating cost is prohibitive if City funding is to be used. Since implementation of this measure is regional in its scope and protects adjacent communities, St. Louis Park should not be required to carry the financial burden. Instead, the State should assume the operational cost. Or, a waiver of Metropolitan Waste Control Commission charges should be obtained recognizing the minimal treatment services which would be required to dispose of the effluent.

4. The Minnesota Pollution Control Agency should begin implementing the well investigating program for which federal funding was received in July, 1981. Use of the federal funding is stipulated for the cleaning of two contaminated deep wells located on the Reilly Tar and Chemical site and for a search of multi-aquifer wells in the St. Louis Park area.
5. Assuming completion of the water treatment study occurs by the spring of 1983, it is reasonable to expect that the contaminated wells that will have been pumping into the sanitary sewer system will be converted into drinking water wells by the introduction of chemical treatment. The closed wells (Wells 4, 7, 9, 10 and 15), when operating at full capacity, will serve as a gradient control well system for the Prairie du Chien-Jordan aquifer. As part of this implementation measure, a monitoring plan should be developed to study the containment of contamination in this drinking water aquifer. Additional gradient control wells could be installed consistent with the need established through the monitoring program.

CONCLUSION

This report is being made after a careful review of previous water studies as well as critical reflections on the lack of progress which has been made in resolving the contamination problem. The City is deeply convinced that the answer to the problem can be found within the confines of the incremental approach outlined in this report. The City urges acceptance of this approach by all parties involved in abatement of this problem.

If this approach is not accepted, the consequences for St. Louis Park and its neighboring communities are predictable. Without management of this problem, the contaminants will certainly spread as they have done before.

It may be argued by some that a piecemeal solution is not an effective solution to the groundwater contamination problem. But does a complete solution even exist or has it only been an unquestioned assumption that has guided the past six years of study? Is the luxury of time available to prove this assumption either right or wrong?

The problem is an immediate one because it is currently affecting the potential quality and the availability of St. Louis Park drinking water. Therefore, the goals of this approach must be two-fold. They must recognize the primacy of establishing standards and implementing treatment procedures to provide adequate supplies of drinking water while efforts continue to find the long-term solutions. The action orientation of this approach is paramount, for to emphasize the importance of study over action is to contribute to an even greater problem than the one which exists today.

TIME LINE

Creosote contamination is discovered	1975
Barr Phase I Report	1975-1976
Barr Phase II Report	1976-1977
MDH study identifies presence of PAH compounds in four City wells	October 1978
City closes Wells No. 7, 9, 10, 15	October 1978
U.S.G.S. studies	1979-1981
City closes Well No. 4	November 1979
City begins conducting carbon-slurry tests to study processes of removing PAH compounds from water	November 1979
Water restrictions instituted	May 1980
City-initiated study of carbon adsorption process is conducted by Hickok & Associates	June 1980-April 1981
Hickok report begins	July 1980
EPA releases \$200,000 to MPCA for a well evaluation and survey program	July 1981
City closes Well No. 5	August 1981
City closes Well No. 14; institutes water use restrictions	September 1981
EPA releases \$200,000 to MPCA for design of a water treatment facility	September 1981
City begins drilling of new deep Well No. 17	October 1981
Release of Hickok report	November 1981
City signs agreement for water interconnection with Plymouth	December 1981
Well No. 14 is determined safe for re-opening	January 1982
City adopts policy outlined in report entitled "Terminating An Endless Search: An Action Approach to Solving the Water Problem	January 1982

PROJECTED TIME LINE

	<u>Initiated</u>	<u>Completed</u>
City begins effort with State & Federal elected & appointed officials to:		
a. Accept City policy statement and approach to problem	January 1982	February 19
b. Commence EPA-financed programs:		
1. Well abandonment program	January 1982	July 1982
2. Water treatment study	January 1982	June 1982
c. Initiate health risk assessment study	March 1982	September 1
City obtains waiver from MWCC or financial assistance from the State to operate Wells 4, 10 and 15 with effluent being discharged into sanitary sewer system	February 1982	March 1982
City designs sanitary sewer connection to Wells No. 4, 10, 15	March 1982	May 1982
Study is initiated to deal with location of "source" fluids & materials	March 1982	March 1984
Plymouth interconnection is operational		March 1982
Contingency plan for hook-up to Minneapolis & Minnetonka are completed		April 1982
Deep Well No. 17 is operational		May 1982
City institutes water use restrictions	May 1982	--
Effluent from Wells 4, 10 & 15 are discharged into sanitary sewer system	June 1982	--
Specifications for water treatment facility are developed	July 1982	December 19
Water treatment facility constructed returning Wells 4, 7, 9, 10 & 15 to operation	March 1983	September 1
Gradient control well needs assessment conducted following return to operation of Wells 4, 7, 9, 10 & 15	February 1984	February 19